SIMULATION SCENARIO PLAN

Title: Hypertension due to measurement error

Author: Chris Nickson

Personnel

- Participating learners: junior medical staff; +/- ICU nurses
- Instructors: Facilitator/ Lead Debriefer and Co-debriefer, Confederate
- Participant Roles:
    - team leader
    - team members as chosen by team leader
    - nurse

Objectives

- To demonstrate validation of monitoring data before subjecting a patient to treatment
- To demonstrate how to calibrate an invasive arterial blood pressure monitor by levelling and zeroing

Storyboard

- Information provided to participants: Jack Gibson is 60 year old man admitted to the ICU post elective CABG and AVR. He has a history of ischaemic heart disease, hypertension and type 1 DM.
- **Scenario events:** Team to allocate roles, develop plan, and trouble-shoot the erronesous blood pressure measurement.

Requirements

- ICU simulation cubicle
- iSimulate monitors (preprepared monitor kit with 2 ipads using iSimulate software)
- Resusci Anne manikin

    - Mannequin
    - Intubated
    - Chest Drain
    - Pacing wires
- Lines: Central Line, Arterial Line (with transducer), Peripheral IV.
- IV pole

Progression (see table)

- Stage 1
    - patient seated at 30 degrees
    - transducer on the floor
    - BP 210/140

Information for participants

- **Generic briefing** (see briefing plan)
- **Specific briefing for this scenario:** Team are told they are the ICU Nightshift team and given the 'information provided to participants' listed under 'Storyboard'. Nurse says BP was fine, but has suddenly 'shot up'.
- **If requested:** Bloods and CXR unremarkable

Stage	A	B	ETCO2	SpO2	ECG	BP	Neuro
1. Start	ETT	RR 16	40	SpO2 100%	SR 90	BP 210/140	MAAS 0

Information for Confederate

- Confederate to be helpful but not assertive
- Confederate to assist junior staff with their roles if inexperienced
- Confederate to use graded assertiveness if gross errors in plan
    - e.g. give drugs without checking mnitoring

Debriefing

- check monitoring system before doing potentially harmful things to the patient!
- re-level the transducer
    - every 10cm error in levelling will result in a 7.4mmHg error in the pressure measured
    - The pressure transducer must be set at the appropriate level in relation to the patient in order to measure blood pressure correctly. This is usually taken to be level with the patient's heart, at the 4th intercostal space, in the mid-axillary line in the supine position. (phlebostatic axis)
- zero the transducer
    - turn stop cock "off to patient, open to air" and press zero
- secure the transducer to prevent recurrence
- NB. if monitoring CPP then the transducer should be zeroed at the level of the tragus

Duration

- Preparation 30 min, Briefing 5 min, Simulation 5 min, Debriefing 5 min

Resources

- LITFL CCC — arterial line http://lifeinthefastlane.com/ccc/arterial-line/